01-099
Estimation of Coho Salmon Escapement in the Upper Egegik River and Becharof Lake, Becharof National Wildlife Refuge

Investigator: U.S. Fish and Wildlife Service King Salmon Fishery Resource Office

FY2001 Budget: $94,500 **Total Budget (three years):** $283,600

Geographic Area: Bristol Bay **Information Type:** Stock Status and Trends

Issue:
Subsistence users are concerned that lack of inseason estimates of coho salmon escapement into the Egegik system will jeopardize sustainability of this run and affect subsistence harvests. Current management is limited to using commercial fishery catch information to manage commercial and sport fisheries and a single aerial survey to index spawning escapement. Daily estimates of coho salmon escapements will ensure that sufficient numbers of coho salmon are available for spawning and subsistence needs. This information will help resolve conflicts between subsistence and sport users and will help the Bristol Bay Regional Advisory Council and the Federal Subsistence Board more fully evaluate regulatory proposals.

Objectives:

1) Estimate daily and seasonal escapement of coho salmon into the upper Egegik River.
2) Estimate the age and sex composition of coho salmon entering upper Egegik River.
3) Estimate mean length of coho salmon by age and sex.

Methods:
Counts of coho salmon entering Upper Egegik River and Becharof Lake to spawn will be obtained by extending the operation of existing Alaska Department of Fish and Game towers used to count sockeye salmon. This study will use the same equipment, location, and procedures used by Alaska Department of Fish and Game, Division of Commercial Fisheries to estimate sockeye salmon escapement into this system. While coho salmon also spawn below the tower site, these counts can serve as an escapement index for the entire Egegik system.

Products:
During the season, daily spawning escapement estimates will be provided to Alaska Department of

Fish and Game. After the season, presentations will be made to local village councils to keep them informed ensure their continued involvement. Reports will be written after the first and second years that will include collected information and a summary of the project. After the third year, a final report will be completed on all aspects of the study and will include conclusions and recommendations.

Experience of Investigators:
James Larson, the principal investigator, has an MS degree from Humboldt State University, and has been the Project Leader in King Salmon Fisheries Research Office over 10 years. His assistant, Jeff Adams, has an MS degree from University of Alaska Fairbanks and over 10 years of fishery experience in Bristol Bay. Mr. Adams supervised the 1994 Egegik River coho salmon tower count.

Partnerships/Collaboration:
Consultations occurred with residents of Egegik Village, Egegik Village Tribal Council, Bristol Bay Native Association, and Alaska Department of Fish and Game. The field crew leader for the study will be hired by Alaska Department of Fish and Game, Division of Commercial Fisheries, while Egegik Village Tribal Council will help recruit two local residents to serve as field technicians. The crew leader will mentor and train these technicians to become crew leaders for future tower operations. As local expertise and capability is developed, local residents will be able to operate this or similar projects.

Recommendation:
This study is not recommended for funding. While the proposed work is of strategic importance and technically sound, it was judged to be of lower priority than other proposed studies for this region given funding limitations and attempts to distribute studies within the region.

Justification:
Egegik River coho salmon management is an important issue with the local Native village, and was identified as an issue by the Bristol Bay-Alaska Peninsula Regional Advisory Council. Coho salmon returning to Egegik River system are harvested in subsistence, recreational, and commercial fisheries. Spawning escapements most years have been monitored through aerial surveys, but management precision would be improved if accurate daily and postseason counts could be obtained at tower sites. With salmon runs declining in many western Alaska salmon systems, obtaining accurate in- and postseason counts of coho salmon spawning in Egegik River system could help ensure subsistence harvest opportunities are maintained and runs are sustained. A similar study was proposed by this investigator for Ugashik River (01-204 Estimation of Coho Salmon Escapement in the Ugashik Lakes System, Alaska Peninsula Refuge) and was judged to be of greater strategic importance. Both studies are relatively straightforward and use methods initially developed by University of Washington investigators that have been refined and used many years by Alaska Department of Fish and Game. Tower counts of coho salmon entering Egegik system were made in 1994, 1995 and 1996, but dedicated funding to continue this work was not obtained. It would be interesting to compare aerial and tower counts for these years to see whether they trend in the same way. However, there appears to be an typographic on page 2 of the investigation plan, since it is very unlikely that tower and aerial counts were exactly the same in two years. Since it can be difficult to differentiate salmon species from counting towers, errors in coho salmon counts could occur if sockeye salmon are still entering the

system. It is also not clear what proportion of the total coho salmon run to this drainage would be available to observers on towers, since there appear to be suitable spawning areas below the tower site. The investigator and his agency are technically and administratively qualified to conduct this work. Consultations have occurred with other agencies as well as local organizations. Partnership and capacity building would consist of hiring local residents and distributing information. Locally hired technicians would be guided and trained by the investigator and agency field staff so that they could assume greater responsibility for conducting this work in the future.